conglomerate, sandstone, shales, and "marls") and "Leroux formation" (shales, with some sandstone and calcareous beds); and Quaternary moraines and alluvium. The thickness of this generalized section is about 2,500 feet. An unconformity occurs between the Kaibab and the Moencopic, between the latter and the "Lithodendron formation," and between the Triassic and later rocks. The Moencopic formation is a fluviatile or shallow-water deposit; the Triassic beds are continental deposits. The major structural feature of the region is a very flat anticline which trends N. 30° W.

Chap. iii gives detailed descriptions of the volcanoes and lava fields. Three general periods of volcanic activity are recognized: (1) widespread basaltic eruptions from small cones, (2) eruptions of lavas (andesites to rhyolites) to form a few large cones, and laccolithic intrusions, (3) extrusion of basalt (less widespread but more cones built up than in the first named). San Francisco Mountain, which is the principal feature of the area, is composed of "lavas and breccias belonging to five distinct stages of eruption."

"The Geologic History of the Volcanic Field and Adjacent Country" is given in chap. iv. The volcanic activity of the first period occurred in the late Pliocene after the peneplanation of the region, that of the second period took place in the early Quaternary during or after the mature dissection of the area, and that of the third period during the latter part of the Quaternary subsequent to broad regional uplift. There was folding and flexing during the latter half or at the close of the Eocene. Faulting occurred at the close of the Miocene, at the close of the Pliocene, and during the middle or latter part of the Quaternary.

The last two chapters, v and vi, are devoted respectively to petrography and petrology.

V. O. T.

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Material for this volume was presented at the Pittsburgh meeting in October, 1914. Three topics include the major portion of the volume: (1) iron, geology, and metallurgy; (2) coal and coke with by-products; and (3) petroleum. The volume contains less purely geological matter than either of the preceding volumes for the year. Fifty-two papers and discussions, many of which are illustrated, are included.

A. D. B.